Quality Assurance Methodology Refinement Series

Internal Quality Assurance: Lessons Learned From the PKMI Hospital Pilot Program in Indonesia

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Acronyms

BKKBN   National Family Planning Coordinating Board

FP   Family planning

IEC   Information, education and communication

IUD   Intra-uterine device

KAP   Knowledge, attitudes and practices

PDCA   Plan-Do-Check-Act Cycle

PKMI   Indonesian Association for Secure Contraception

PKBRS   Hospital Family Planning Program Units

PSFP   Private Sector Family Planning Project

QA   Quality Assurance

QAP   Quality Assurance Project

USAID   United States Agency for International Development

Executive Summary

As part of its activities under the Private Sector Family Planning (PSFP) Project, the Indonesian Association for Secure Contraception (PKMI) developed and conducted a pilot test of an internal quality assurance program in the family planning units of 16 hospitals between May 1992 and March 1995. The internal quality assurance program was intended to complement an existing external quality assurance system which PKMI had been supporting since 1984, consisting of periodic meetings to review monthly activity reports submitted by clinics and site visits to clinics experiencing difficulties. The internal quality assurance program was intended to motivate hospital staff to assume greater responsibility for the quality of the services they provide.

The internal quality assurance program was pilot-tested in several district-level hospitals in Jakarta and West Java, areas where most hospital-based family planning services are provided. The primary objective of the pilot test was to determine the feasibility of implementing a quality assurance approach to problem-solving, which consisted of six steps: 1) build a quality assurance team, 2) identify a problem, 3) identify the causes of the problem, 4) identify a solution, 5) implement the quality assurance solution (essentially the Plan-Do-Check-Act cycle), and 6) evaluate the outcome.

PKMI played a dual role in the internal quality assurance pilot test, serving as both the manager of the study and the principal source of training and technical assistance for the hospitals. Technical assistance was also provided to PKMI by international consultants from the Quality Assurance Project and the Project Support Group of the PSFP Project, both funded by the U.S. Agency for International Development.

PKMI and the international consultants spent the first year of the project developing, testing and revising a reference manual in Bahasa Indonesian on quality assurance for long-term contraceptive methods. The manual served as the basic tool for the internal quality assurance program. In April 1993, hospital and family planning unit directors attended one-day Quality Assurance Awareness workshops to develop their understanding of and support for the program. Each of the hospital directors then appointed an internal multidisciplinary team (averaging 8-13 members) to

participate in the pilot program. Three members of each team attended a five-day Quality Assurance Basic Skills Course conducted by PKMI. These participants were supposed to train the other members of their team when they returned to their hospitals. It was expected that they, together with the hospital director, would conduct a one-day Quality Assurance Orientation seminar for the entire hospital staff.

The PKMI program focused on problem-solving and did not seek to establish an institutional structure in each hospital to sustain quality assurance activities in the long-term. Once the training was completed, the teams were expected to implement the quality improvement cycle, starting with team meetings to identify, prioritize and analyze problems. PKMI provided on-site technical assistance during the entire cycle, making an average of 10 visits to each hospital.

Of the 16 hospitals which received orientation and training, 13 initiated quality improvement activities, and 9 completed an entire problem-solving cycle of problem identification, solution development and implementation. The teams formed spent from 8 to 15 months to complete a problem-solving cycle.

Although the teams were able to apply many of the concepts and techniques they learned in training, most of the hospital teams had difficulty with the steps in the quality improvement process, particularly identifying and understanding problems. This was due, in part, to a lack of analytical skills and in part to lack of participation by key staff. In some cases, the problems identified and solutions proposed were overly simplistic. In other cases, however, causes and solutions were impressive and led to measurable improvements in the coverage of family planning services and the performance of key tasks. Examples of quality improvements obtained by the teams include a reduction from 50% to 0% of potential family planning clients leaving the hospital without receiving family planning services or referrals; reduction of of post-operative infections among tubectomy clients, from 6.6% to 0%; reduction in the proportion of incomplete medical records from 40% to 10%; and an increase in the proportion of clients aware of sterilization from 70% to 93%.

Personnel issues were seen to have an important effect on team performance. Support from the Hospital Director was a key factor in the overall success of team efforts. If the director was supportive, it was more likely that the team would complete the problem-solving process; when the director was not overtly involved or interested, the team stopped functioning or did not start at all.

The PKMI manual proved to be a popular and useful reference for the internal quality assurance activities. The training program, which provided basic skills training for only 3 members of each hospital team and relied on onsite technical guidance from PKMI monitors to support the teams throughout the problem-solving cycle, was found to impart insufficient skills to the teams in the areas of data collection and analysis, interpretation of results, and linkages between the steps—skills which are essential to effective problem analysis. While the visits of the PKMI monitors provided valuable assistance, the need was identified for training an individual within each hospital who could serve as an ongoing facilitator and source of motivation and support for quality assurance teams.

PKMI has been successful in promoting a great deal of interest in quality assurance in Indonesian hospitals. The quality assurance activities which were implemented as part of this pilot program are not, however, well institutionalized within the hospitals, and only a few of the teams were able to realize significant and sustained improvements in service quality as a result of the quality assurance activities. The quality assurance programs initiated were also limited because they focused only on family planning services limited to one or two units. Hospital directors may have been reluctant to embrace quality assurance programs which were not immediately beneficial to the entire facility.

The pilot test results suggest that, to enhance the effectiveness and sustainability of internal quality assurance efforts, internal hospital quality assurance programs should encompass all aspects of the facility (not just one type of service) and aim from the outset to construct a self-sustaining quality assurance system that does not depend on external support. The pilot test found that this requires a systematic, yet flexible approach to quality assurance; an overt and visible commitment from the facility's leadership; the creation of a dedicated cadre of qualified quality assurance

coaches and staff within the hospital; and the development of an adequate organizational structure for quality assurance. Documentation and internal dissemination of results is needed to better communicate accomplishments, build support for instituting similar reforms or improvements in other departments, and strengthen advocacy for quality assurance throughout the hospital.

Internal Quality Assurance:

Lessons Learned from the PKMI Hospital Pilot Program in Indonesia

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I. Background
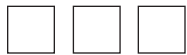
A. PKMI Quality Assurance Program

The Indonesian Association for Secure Contraception (PKMI) has been actively developing and supporting an external monitoring and supervision system for long-term contraceptive methods[1] since 1984. This external quality assurance system consists of two major activities at the field level: 1) periodic meetings to review monthly activity reports submitted by clinics; and 2) site visits to clinics that are having problems to conduct a comprehensive review of facilities, equipment, clinic staff and clinical procedures. Provincial teams consisting of members from PKMI, the National Family Planning Coordinating Board (BKKBN) and the Ministry of Health meet periodically to assess quality and discuss feedback from clinic visits, as well as to select clinics to be visited. Selection of clinics is based on the extent of voluntary surgical contraception problems such as complications, failures, and incomplete procedures.

PKMI had been interested for some time in developing an internal quality assurance system to complement the external system. With encouragement and support from the BKKBN and the U.S. Agency for International Development-funded Private Sector Family Planning (PSFP) and Quality Assurance (QAP) projects, PKMI began developing such a program in May

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1   Voluntary Surgical Contraception (VSC), IUD, Norplant

1992, when QAP staff member Wayne Stinson met with PKMI to plan a study to develop and test a new internal quality assurance model for hospital-based family planning programs.

The model, known as the Program Menjaga Mutu, or PKMI Internal Quality Assurance Program, consisted of a systematic team-based approach to improving the quality of long-term contraceptive services. The model was adapted from the current state-of-the-art in quality assurance as well as from the experiences of QAP in other developing countries. PKMI's internal quality assurance program was designed to encourage hospital staff to take responsibility for the quality of care in their hospitals by providing them with the skills needed to effectively resolve and monitor problems in the delivery of family planning services.

B. Pilot Test of the Hospital Internal Quality Assurance Model

The pilot test of the internal quality assurance program was planned to be implemented in several district-level hospitals (in Jakarta and West Java), since this is where most hospital-based family planning services are provided. The primary objective of the pilot test was to determine the feasibility of implementing PKMI's quality assurance model, especially with respect to the ability of teams to carry out steps in the quality assurance process and the effectiveness of the program in building and supporting the teams. The pilot program also sought to identify constraints to wider-scale implementation of the program, such as costs and staffing needs.

The study was conceptualized as a "case study" design involving individual monitoring and documentation of the experiences of 10 study hospitals. In 1994, seven other hospitals were added after they expressed a strong interest in quality improvement. The end of project date was extended from December 1994 to March 1995 to allow the newer hospitals time to work through a problem-solving cycle. Because one of the original 10 case hospitals dropped out at the start of the program, in the end a total of 16 hospitals participated in the PKMI internal quality assurance program.

PKMI played a dual role in this pilot project: firstly, providing management, administrative, and technical oversight for all aspects of the research study, and secondly, acting as an external consultative organization to the participating hospitals. PKMI received technical assistance in refining its quality assurance approach, developing the reference manual, and designing the training programs from QAP and PSFP.[2]

PKMI initially conducted orientation training for hospital directors to introduce them to the principles of quality assurance, the problem-solving process, and the benefits of improved quality to the hospital and its clients. PKMI also conducted basic skills training courses for up to three members of each hospital quality improvement team. For the research project, PKMI hired five teachers from the Faculty of Community Medicine of the University of Indonesia and seconded two of its own staff to serve as quality assurance facilitators who made regular visits to the hospital teams to assist them as they moved through the steps in the quality improvement cycle. PKMI did not, however, attempt to help hospitals develop an organizational or management structure to support a quality assurance program.

Each PKMI quality assurance facilitator was responsible for two to three hospitals, making monthly support/supervision visits. Initially, those hospitals that had functional teams were visited monthly by the PKMI facilitator. Beginning in January 1994, each of the hospitals was visited monthly by Dr. Azrul along with the facilitator assigned to that hospital.

PKMI supported all costs associated with training Hospital Directors and quality improvement teams and provided each hospital with a small amount of funds to support the activities of the teams, such as office supplies, photocopying and refreshments during the team meetings.

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2   The Principal Investigator for the project was Dr. Azrul Anwar, the Director of PKMI. He was assisted by Ms. Amber Roestam and Dr. Dewi Soemarko from the Faculty of Community Medicine of the University of Indonesia, who were responsible for developing, testing and applying data collection forms and coordinated hospital visits. Additional faculty from the University of Indonesia and PKMI staff participated in the training and monitoring activities. Technical advisors to the project included Dr. Wayne Stinson and Ms. Maria Francisco from QAP and Patricia MacDonald from PSFP.

II. Design of PKMI's Internal Quality Assurance Program

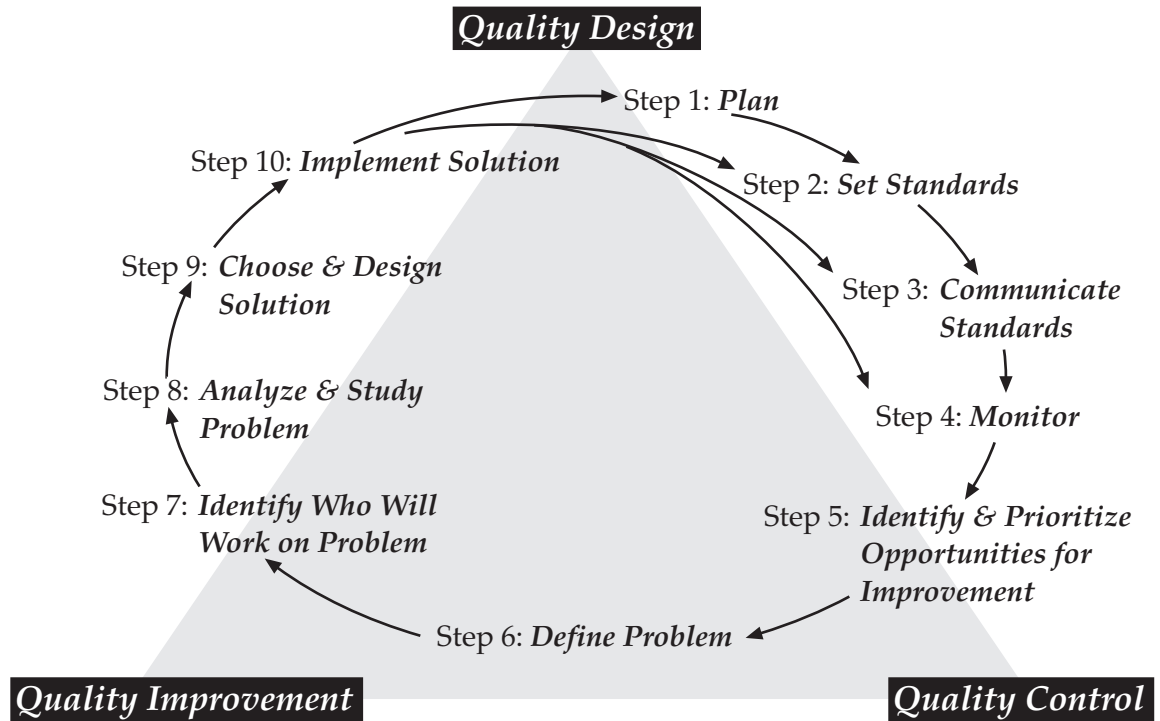*A. Development of PKMI's Quality Assurance Manual*

The Quality Assurance Manual formed the basis for the PKMI quality assurance approach by describing the basic concepts and techniques for implementing quality improvements. The manual was also used to develop the training courses and materials.

The first draft was produced during the months of June - September 1992 by staff of QAP. The quality assurance approach developed in the manual focused on quality improvement activities, a more narrowly defined set of activities than is typically encompassed by the 10-step quality assurance cycle advocated by QAP and illustrated in Figure 1. Because standards already existed for the hospitals' key contraceptive services (i.e., counseling, surgical procedures, infection prevention, etc.) (Quality Design) and because PKMI's external quality assurance efforts were monitoring program outcomes (Quality Control), the PKMI quality assurance program chose to focus on the steps in the Quality Improvement phase of the quality assurance cycle. PKMI defined its quality assurance approach as six steps: 1) build a quality assurance team, 2) identify a problem, 3) identify the causes of the problem, 4) identify a solution, 5) implement the solution (essentially the Plan-Do-Check-Act cycle), and 6) evaluate the outcome.

QAP staff Wayne Stinson and Maria Francisco spent a month in Indonesia in October - November 1992 to review the content and objectives of the draft with PKMI, PSFP, and an executive board comprised of senior members from PKMI and BKKBN. Selected tools and processes were pre-tested in several Jakarta hospitals to determine their appropriateness and the levels of facilitation needed to carry them out. The techniques described in the manual included brainstorming, criteria matrix, flow chart, fishbone diagram, pareto diagram, run chart and statistical measures.

Revisions were made to the manual by QAP staff between November 1992 and February 1993, and the final version was translated into Bahasa Indonesian soon after in preparation for the first training sessions which were scheduled for April 1993.

FIGURE 1. The QAP Framework

Quality Design

Step 1: *Plan*

Step 10: *Implement Solution*

Step 2: *Set Standards*

Step 9: *Choose & Design Solution*

Step 3: *Communicate Standards*

Step 8: *Analyze & Study Problem*

Step 4: *Monitor*

Step 7: *Identify Who Will Work on Problem*

Step 5: *Identify & Prioritize Opportunities for Improvement*

Step 6: *Define Problem*

Quality Improvement

Quality Control

B. Training Activities

Four types of training activities were carried out as part of the pilot test: 1) Quality Assurance awareness seminars conducted by PKMI for hospital directors and department heads, 2) basic skills training in the use of quality assurance tools and techniques for up to three members of each hospital quality improvement team, 3) general quality assurance orientation seminars to introduce the concepts of quality assurance to a wider audience of hospital staff, and 4) specialized training for PKMI quality assurance facilitators or "coaches."

The Quality Awareness seminars were one-day orientations to the principles of quality assurance and the internal quality assurance model that were led by PKMI. The seminars were directed at Hospital Directors and Family Planning Program (PKBRS) Directors in the study hospitals as a means for strengthening commitment and organizational support for the quality improvement pilot test activities.

The Basic Skills Courses were five-day workshops to provide technical training in the tools and techniques of the PKMI approach. These workshops were attended by up to three members of the operational level quality improvement team from each hospital, made up chiefly of staff from the family planning program units (PKBRS) in each hospital. It was envisioned that the hospital staff trained by PKMI would in turn provide training and direction to the other team members who did not participate in the basic skills training. Training consisted primarily of lecture and small group exercises. Participant materials included the PKMI Quality Assurance manual as a reference guide, copies of overheads used in the presentations, and handouts for small group work. QAP staff Maria Francisco and Wayne Stinson also attended these workshops, along with PSFP's Patricia MacDonald, providing technical support to PKMI.

The first of the Basic Skills Courses was held April 19-22, 1993. A team of three participants (a doctor from the PKBRS or Obstetrics/Gynecology Department, one or two midwives or nurses, and one support staff) attended from Husada, Koja, Ridwan Meureksa, and Sukabumi Hospitals, and one participant attended from both Tanggerang and Marinir Hospitals. A second training was conducted April 26-29, 1993. Three participants attended from Budi Kemuliaan, Pelni Petamburan, and Bekasi Hospitals, two from Sukabumi Hospital, and three doctors from Marinir Hospital. In total, staff from nine of the original ten study hospitals were trained; one hospital dropped out prior to the training because they chose to use a different model for their quality assurance program. When PKMI expanded the Internal Quality Assurance Program to include seven other hospitals (UKI, Al Kamal, Harapan Kita, Tresna Pangestuti, Islam Klender, Fatmawati and Persehabatan), a third Basic Skills Course was conducted by PKMI staff in November 1993.

The third type of training activity envisioned in the pilot test design was to be a hospital-wide orientation seminar conducted in each hospital after the quality improvement teams were trained. Participants were to include all members of the hospital staff so that the Director and the quality improvement team members could introduce the objectives and activities of the internal quality assurance program. Seminars were to be led by the Hospital Directors and team leaders, although Dr. Azrul often did this. Six of the nine study hospitals (Marinir, Husada, Sukabumi, Bekasi, Budi Kemuliaan, Tanggerang) implemented orientation seminars during May and June 1993.

The final type of training was a specialized course entitled "Introduction to Coaching and Intermediate Skills" given by QAP Training Manager Elizabeth Mariani for PKMI facilitators assigned to monitor hospital quality improvement activities. The course was given in May 1994 after the project's first interim evaluation recommended that measures be taken to strengthen the technical and facilitation skills of PKMI monitors. In addition to the PKMI facilitators, the course was also attended by five participants from BKKBN and five from various groups within the Ministry of Health. This training enabled participants to better understand the role a coach plays in motivating and helping teams to apply and adapt quality assurance techniques. The course also covered effective communication and decision-making techniques, and provided more practice and experience with the quality assurance tools.

III. Implementation of the Internal Quality Assurance Program in 16 Hospitals
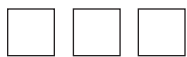
Information on the implementation of the quality improvement process was obtained from 13 of the 16 participating hospitals through interviews with PKMI and hospital staff during the interim evaluation in January 1994 and the final evaluation of the pilot project in January 1995 (information was not available for the other three hospitals). Case descriptions of the activities carried out in 11 of the hospitals are found in Attachment A.

Of the 13 hospitals, two did not initiate a problem-solving cycle (even though they each sent three staff to be trained at the first basic skills workshop). The principal reasons given for this by the team members were changes in the hospital and/or division directors and team leaders, who were usually doctors, being too busy to participate in the team's activities. Of those hospitals that began the quality improvement process, three did not complete the problem-solving cycle. Reasons most frequently given by the team members for not completing the cycle of activities included: the team leader was not available, lack of interest or the problem was not relevant to them, too much time required for meetings and activities, or the process was too slow.

At least one hospital expanded its quality assurance program beyond long-term contraceptive methods, either by having the existing team provide training to other teams within the hospital, or through a request to PKMI for further training and/or technical assistance. In this hospital, the Director was very interested in quality assurance and had been successful at motivating other units within the hospital to begin quality improvement activities.

A. Organization and Activities of the Quality Improvement Teams

Quality assurance was a new program for nearly all hospitals. Hospital directors who elected to participate in the pilot program were asked to assign staff members to be trained as part of the internal quality assurance program, with the understanding that these staff would constitute the core of the quality improvement team in each hospital. Members of the quality team were drawn from several units in the hospital including the family planning polyclinic, surgery and/or anesthesiology, the in-patient maternity unit, medical records and administration. These multi-disciplinary teams usually had between 8 and 13 members, with the head of the Obstretics/Gynecology department or another physician typically designated as the team leader.

Some hospital directors assigned team members prior to the selection of the first problem. This resulted in teams comprised of staff who were not all directly involved in the problem, often leading to disinterest, low

participation or drop-out by team members who did not feel they could contribute to understanding or resolving the problem. For most teams, about 75% of members participated fully in meetings and problem-solving activities. Teams usually required about 10 meetings to proceed through each of the steps in the process; one team met 29 times with nearly full participation from all its members. Team meetings lasted between 1 1/2 and 2 hours, with most teams taking the full 2 hours. Initial meetings were used for team-building and brainstorming about possible problems. Thereafter, the agenda consisted primarily of reviewing the work that individual team members completed between meetings, applying the tools, discussing findings, and planning next steps. Teams used more meetings to work through the first two steps (identifying a problem and understanding its causes) than were used in subsequent steps to develop, implement, monitor, and institutionalize solutions.

The factor that appeared to contribute most to the team's ability to function was the involvement of the team leader. If the team leader was not active in organizing meetings, motivating the team, and following up on the team's activities, the team quickly dissolved or become dysfunctional. External support and "push" from PKMI was also essential, and in some cases, critical for ensuring that teams remained together and moved forward with the problem-solving cycle.

Many teams reported that senior physicians did not have enough time or interest to dedicate to the quality improvement activities. In some instances, a staff physician or midwife was assigned to be acting team leader with responsibility for organizing meetings and informing key people.

Teams received varying amounts of internal support for their problem-solving activities. Only about half of the teams had the participation of departmental supervisors, and a third benefited from consultations by specialists within the hospital. Only four of the teams received feedback from either the unit or Hospital Director about the progress of their work. The support of the Hospital Director was a crucial factor in the team's success or demise. Some teams never got started, or stopped soon after starting, when the Hospital Director was not actively supportive of the activities. In several hospitals, even when the director was supportive of quality assurance, he was not always active in promoting its importance nor in encouraging the teams to continue their efforts.

B. Implementation of the Quality Improvement Process

Because a key objective of the pilot test was to determine how well the teams could carry out the steps in PKMI's internal quality assurance model, the final evaluation of the pilot program considered how the teams implemented the main steps in the model: problem identification, understanding the problem and its causes, and designing, implementing and evaluating solutions.

1. Problem Identification

Each team was free to select any problem related to the provision of family planning services; the problem could be clinical, non-clinical, or administrative in nature. Two hospitals selected clinical problems: side effects in IUD clients and post-operative wound infections in tubectomy clients. Six teams selected non-clinical problems: three related to clients' knowledge of family planning, two dealing with waiting time, and one dealing with new clients not returning for follow-up visits. Two teams selected administrative problems: incomplete medical records and the filing/retrieval system. Teams spent an average of 2 1/2 to 3 months identifying, prioritizing and selecting a problem to work on.

All teams began the problem identification steps by brainstorming a list of problems. Teams initially had difficulty with this step, and had to ask themselves such questions as: When is something a problem? What is a quality problem? Teams were encouraged to list anything that was said during a brainstorming session and then clarify and confirm these problems through group discussion and data gathering.

While the majority of hospital teams collected data to measure the magnitude of the problem, many did not gather the most appropriate information. For example, one team interviewed staff to derive a measure for the proportion of staff who felt that clients waited too long, rather than gathering data directly on the number of clients who actually waited and how long they waited. Such weaknesses make it difficult to evaluate the impact of a solution on a problem and underscore the need for improved guidance and/or skills training in data collection and use.

Nearly all teams used a criteria matrix to decide which problem to work on. Criteria included: the problem's importance, availability of technology

to solve the problem, and availability of resources. Some teams used the criteria matrix before collecting baseline data on the problem. However, they did collect data on a priority problem before proceeding further in the problem-solving cycle.

2. Understanding the Problem and its Causes

The basic skills training course introduced three methods for trying to identify the causes of a problem: the flow chart, the fishbone diagram, and the "5 Why's". Almost all teams used the flow chart followed by the fishbone diagram. Most teams constructed a high-level flow chart beginning with the client entering the clinic and ending with the client leaving. These flow diagrams had nearly identical steps: arrival, registration, payment, counseling, history-taking, examination, provision of a family planning method, and exit from the clinic. While some teams inserted more steps specific to their problem, very few teams actually constructed a detailed flow chart. While some teams were able to identify potential sources of problems in key activity areas such as counseling, other teams had difficulty analyzing the flow chart.

In constructing the fishbone diagrams, nearly all teams organized their ideas under the generic categories of manpower, money, methods, and materials. Most teams identified general causes rather than specific ones, often identifying the lack of resources or inputs as likely causes rather than processes which were not working. However, team discussions reportedly had more to do with improving the effectiveness of such inputs such as manpower, than with increasing the numbers of inputs. Teams may have had difficulty talking directly about 'processes', but indirectly talked of improving them.

After using these two tools, each team developed a short list of potential causes and collected data to verify them. Only in rare instances did teams determine the cause of a problem without using data (e.g., using only group discussion and consensus or a criteria matrix). Data collection methods included staff or client interviews, direct observation of services or equipment, and review of medical records.

When data had been collected and tabulated, teams used either the pareto diagram or criteria matrix to select priority causes. Some teams used both when the results of tabulating data did not reveal a clear priority among

the causes. Priority causes fell into three general categories: staff (not enough or poor knowledge and practice); equipment (not available or not existing in sufficient quantities); and processes (not implemented correctly or implemented in conjunction with other services). Table 1 summarizes the problems, causes, and solutions identified by the hospitals.

TABLE 1 Summary of Problems, Causes and Solutions Resulting from the PKMI Internal Quality Assurance Program

Hospital	Problem	Cause(s)	Solution
1 Al Kamal	80% of FP clients don't return for follow-up visit	Low knowledge, insufficient money, counseling, posters	Train staff, get posters, give counseling
2 Bekasi	7.5% of hospital inpatients receive IEC about FP		
3 Budi Kemuliaan	20% of FP clients' med. records are difficult to locate on return visits	Workers who file medical records want to go home quickly	Develop guides for filing medical records; training and dissem.
4 Fatmawati	92% of workers report that tubectomy patients wait too long	Team stopped work	
5 Harapan Kita	40% of medical records are incomplete	Behavior of nurses, doctors, others	Nurses check charts
6 Husada	7% of tubectomy patients have wound infections	No IEC materials	Get leaflets; provide education
7 Islam Pondok Kopi	95% of FP clinic users have low FP knowledge	Not enough staff to do counseling	Add staff to FP clinic to do counseling
8 Koja	Did not start		
9 Marinir Cilandak	50% of potential FP clients leave without receiving services	FP given on same day as immunizations	Increase FP/immun. from 1 to 2 days/month
10 Pelni	92% of FP clients don't know about voluntary sterilization	Few staff, low knowledge, not enough time	Rearrange FP clinic schedule
11 Persehabatan	Data not available		
12 Ridwan Meureksa	12% IUD users experience side effects (discharge, bleeding)	Insufficient IUD insertion equipment	Sterilize equipment immediately
13 Sukabumi	Multiple problem-solving cycles		
14 Tanggerang	Did not start		
15 Tresna	Data not available		
16 UKI	Data not available		

Many teams reported that the steps in this phase of the problem-solving process took the longest. On average, teams met 2-3 times to discuss and complete the steps.

3. Solution Design and Implementation

Teams brainstormed about ideas for alternative solutions and then used a criteria matrix to select one solution. Criteria used to select a solution differed from those used to prioritize and select a problem and included effectiveness (magnitude, importance, vulnerability) and efficiency (cost).

Although the majority of causes identified by the teams had to do with inputs, such as not enough staff and equipment, the majority of the solutions focused on improving processes. For example, three teams added and/or trained staff, while six teams made changes in the way tasks were being carried out. Of the latter six, two altered clinic schedules to make more time for services while the other four identified new activities and set up guidelines or procedures to implement them.

Teams spent from 3 to 6 months implementing and monitoring solutions, using the Plan-Do-Check-Act (PDCA) Cycle. Monitoring focused on assessing how well the activities of the solution were being carried out and their effect on the causes of the problem.

C. External Support

For most hospitals, the external stimulus and encouragement from PKMI facilitators appears to have contributed greatly to the team's motivation and ability to work through the problem-solving process. As described earlier, PKMI facilitators were assigned responsibility for motivating, coaching, and providing technical support to the hospital teams.

Each PKMI hospital monitoring visit lasted approximately 2-3 hours during which time the PKMI facilitators were supposed to review the team's progress and provide technical or administrative assistance as needed. Initially, these hospital visits were less frequent which may have been due, in large part, to time constraints on the part of PKMI staff, an inadequate number of facilitators, and assumptions made about the moti-

vation and capabilities of the teams. This may also have been due to the uncertainty or lack of confidence on the part of PKMI staff to act as facilitator, a role that they were not adequately prepared for at the beginning of the study. Later in the project, PKMI visits were better organized and more regularly scheduled.

Beginning in January 1994, each of the hospitals was visited monthly by the assigned PKMI facilitator accompanied by the Principal Investigator, Dr. Azrul. During Dr. Azrul's visits to the hospitals, meetings were held with hospital and family planning program (PKBRS) directors to continue building support and commitment to quality assurance. Together with the hospital quality improvement team members, Dr. Azrul and the PKMI facilitator reviewed the progress and work of the team, provided feedback, and discussed next steps. Formal meetings were held between Dr. Azrul and all facilitators at least once or twice a month. During these meetings findings from hospital visits were discussed and schedules planned for the next month's visits.

Whenever possible, the PKMI facilitators tried to plan their visits to coincide with the hospital's quality improvement team meeting. The intent was to assist the team either by observing and providing feedback about the use of tools, or by actively guiding the team through the process. It is perhaps not surprising then that the number of visits made by PKMI facilitators to each hospital corresponds almost exactly with the number of meetings held by the hospital teams. However, few of the visits by PKMI facilitators actually occurred at the time of the team meetings. This meant that the PKMI facilitator could review activities that were carried out since the previous visit, and could help plan the next steps, but could not intervene in a timely manner if there were problems.

Much of the motivation and work of the hospital teams appears to have been externally driven. When the team knew that PKMI would make a visit, they would hold a meeting and conduct one or more steps in the quality improvement process. This placed an enormous burden on PKMI to ensure that frequent contact and visits were made to each hospital. Much of the facilitators' time was spent calling hospitals and scheduling

visits, writing and sending letters, and then conducting the visits. Many of these visits were also heavily occupied with administrative tasks such as signing for money and collecting information for the research purposes of the pilot test. PKMI facilitators used special supervisory forms for recording information about the activities carried out by the hospital teams, including the dates and duration of team meetings, expenses incurred, number of team members, status of the quality improvement step being carried out, and results of the team's work.

D. Costs

PKMI supported all costs associated with orienting hospital directors and training quality improvement teams. In addition, PKMI provided each hospital with funding to conduct a seminar to orient all hospital staff to the problem-solving process and a small amount of money to support the team's activities, i.e., materials, photocopying, and refreshments during monthly team meetings.

Table 2 summarizes average PKMI expenditures for travel and other direct costs related to the training, problem-solving and monitoring activities per hospital. These costs averaged Rp 2,561,800 per hospital, or US $ 1219 (US 1 = Rp 2100).

It is important to point out that the real costs of the PKMI internal quality assurance model are much higher, since the figures exclude salary costs for PKMI personnel and personnel costs for hospital quality improvement team members. PKMI estimated that approximately 96 person hours of its staff time was spent on each hospital, and that the hospital quality improvement teams spent an average of 160 person hours of time in team meetings.

TABLE 2 Average PKMI Expenditures for the Internal Quality Assurance Program Per Hospital

Activity	Cost - Indonesian Rp	Cost - US $
Training		
Orientation for hospital director	315,000	150
Training hospital quality improvement team	915,000	436
One-day seminar for hospital staff	500,000	238
Subtotal	1,732,000	824
Expenditures by hospital teams		
Refreshments (Rp 26,800/meeting x 11 meetings[3])	294,800	140
Materials/photocopying[4]	100,000	48
Subtotal	394,800	188
Travel costs for PKMI facilitators		
2 visitors @ Rp 25,000/visit x 8.7[5] visits	435,000	207
TOTAL	**2,561,800**	**1,219**

IV. Conclusions and Lessons

A. Design of the Quality Assurance Model

Scope of the quality improvement cycle

Two key limitations in the PKMI internal quality assurance program design became apparent during the field test. First, the PKMI program focused only on problem-solving, with less emphasis on the planning needed to develop a more sustainable quality assurance program within each hospital. The program design did not fully consider how the quality improvement activities would relate to the management structure and the needs and expectations of the various levels of management within each hospital.

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3   Actual meeting expenses reported by the hospital teams ranged from Rp 12,500 to Rp 50,000 per meeting, at an average of Rp 26,800; total meetings reported by 12 hospitals equaled 133, averaging 11 per hospital.

4   Only two hospitals reported actual expenditures for stationery and other supplies, at approximately Rp 100,000 during one problem-solving cycle.

5   PKMI staff (usually the facilitator plus Dr. Azwar) made a total of 104 visits to 12 hospitals, averaging 8.7 visits per hospital.

The second limiting factor was the program's focus solely on family planning—PKMI's technical area of expertise. This limited work to only the PKBRS units and usually one outpatient clinic of the hospital. Of all the services provided within the hospital, family planning is usually not high on the list of priorities for hospital directors (unless they happen to also be director of the PKBRS). Thus, many hospitals are reluctant to buy into a quality assurance program which is not beneficial to many units, if not to the entire hospital.

☙ Hospital-based quality assurance programs depend on the support of senior management to be sustained. The establishment of a quality assurance programs within a hospital should include building commitment among hospital leaders; helping them articulate a vision of quality for the hospital; developing leadership and technical skills among a wider selection of hospital staff; and defining and developing a management structure to support quality assurance (beginning with the creation of a council or committee responsible for quality assurance activities). Programs that are limited to only certain types of services are less likely to be sustained.

PKMI QA Manual and Training

The PKMI manual provided a popular and useful reference for the quality improvement activities. The manual, however, rigidly defined problem-solving as a linear process and did not allow for much flexibility in deciding when and how to use the tools. Teams using the manual seem to have assumed they were supposed to use all the tools for the purpose and in the order described by the manual.

☙ Quality assurance facilitators and team members should not be overly concerned about using an exact sequence of tools as described by a manual or other reference document, but rather should be more mindful of the need to use and adapt an approach which ultimately gets results. Similarly, the basics skills training should be more flexible, for example, by allowing participants to choose the most appropriate tools, etc.

During the first technical or "basic skills" trainings, less emphasis was placed on data collection and analysis, interpretation results, and linkages between the steps, as it was expected that teams would receive "just-in-time" assistance when the need arose. The lack of these skills may have precluded effective problem analysis in many cases. Many teams had difficulty with identifying what kind of data would be appropriate and how to use the data (and data collection instruments) to study and monitor problems.

☞ Basic skills training should be strengthened by using pre-fabricated case studies, describing a relevant problem and tracing the flow of actions taken to resolve it, which effectively guide participants through the selection and use of QA tools and which demonstrate the need for and use of critical data.

B. Implementation of the Quality Improvement Cycle

Organization of the Quality Improvement Team

Due to budget constraints, only three members per team had received formal quality assurance training from PKMI, although teams grew to as large as 8-13 members within the hospitals. Some appointed team members were not concerned with the problem and did not need to be on the team. Team leaders were generally not well prepared for their role as a team leader prior to the start up of activities. Physicians, by and large, did not function well as team leaders; many dropped out primarily because they were too busy or not interested. Many teams were not fully participatory and did not include all members in discussions and decision-making; decisions were often made only by the team leader.

☞ Team membership may need to be adjusted to reflect the task at hand. It may be helpful to have a broader representation at initial meetings to help identify an appropriate problem. Once the problem is identified, team membership should be adjusted to reflect actual involvement with the problem chosen.

❀ All team members should be given some degree of basics skills training in the hospital. Such training should also include team-building elements such as understanding and clarifying the roles of individual team members and more effective communication and decision-making techniques.

Problem-solving Process

All steps in the problem-solving process were implemented to some degree by most of the teams. According to team members, the most difficult and time-consuming steps were to clearly identify a quality problem and then understanding the problem and its causes. Often teams produced problem statements which were too vague or complex, an error which may have been offset by the implementation and/or completion of an initial quality assessment. In many instances, service delivery standards were not used by the teams to assess quality or identify problems, though in others, team members formulated and then gained consensus on them before proceeding. The least well implemented steps were those surrounding the collection and analysis of data.

❀ The problem-solving process needs to incorporate better use of standards i.e., as a basis from which to evaluate performance and measure improvement. Simple quality assessments might be done to help staff acknowledge the existence of problems as well as provide useful quantitative measures of quality.

C. Support for the Quality Improvement Teams

Internal support

Support from the Hospital Director was a key factor in the overall success of the team's functioning. Support and encouragement from the director motivated the teams and led to some degree of ownership for the quality assurance program within the hospital. If the director was supportive, it was more likely that the team would function and proceed through the problem-solving steps. But when the director was not outwardly involved or supportive, the teams stopped functioning or did not start at all.

From the outset, PKMI recognized the critical role of senior management in implementing quality assurance, though their specific roles and the responsibilities were not formally articulated. Selection of hospitals was based on their agreement to try out the program. Participating hospital directors and family planning program directors were then given an orientation and/or were included in the team training. Some months later, however, several hospital directors were reassigned to other hospitals, and with the change in leadership, teams which had already been formed could not move forward with activities.

☞ The recurring problem of staff turnover, particularly among senior management, underscores the need for consistent leadership and institutional support to sustain quality assurance programs. Strengthening commitment among hospital directors and other division heads will help to ensure that quality assurance awareness and/or knowledge can be sustained despite the loss or change in staff. Directors should have specific roles as part of a quality assurance program and be given responsibilities for which they are held accountable. In addition, quality assurance programs should begin only in those hospitals which express a true commitment for quality assurance efforts.

External monitoring/coaching

PKMI's visits to the hospitals were regularly planned and carried out. Yet, PKMI visits did not always coincide with the dates and times of the team's meetings. PKMI facilitators then were limited to conducting a retrospective review of the team's work since the previous visit and had difficulty intervening if several steps had already been done incorrectly or incompletely.

☞ To provide ongoing support to quality improvement teams with a hospital, an individual within the hospital should be designed as the internal quality assurance facilitator who could be adequately trained to serve as an in-house coach and an ongoing source of motivation and support. This facilitator would be better able to provide timely coaching of teams as they worked through the problem-solving steps and reduce reliance on outside technical guidance and stimulus.

Descriptions of the Experiences of 11 Hospitals

RS Ridwan Meureksa

Ridwan Meureksa is a district-level army hospital in central Jakarta. Since 1970 they have been offering the full range of family planning contraceptive services, although there are very few clients for implants or vasectomy. The staff of the family planning unit see an average of 18 new clients and 160 continuing users per month.

Three members of the hospital's family planning clinic participated in the PKMI team training for quality assurance in April 1993. However, in the year following the training, two new hospital directors were appointed. During this transition phase, the team did not begin any quality assurance activities. With the appointment of the second director, the quality improvement team was appointed and began working in May 1994. The hospital's activities began with an orientation for 48 hospital staff to the quality assurance program, after which the team began on their journey through the quality improvement process.

Problem Identification:

The team began by brainstorming a list of eight problems. "This is the most difficult step for us, to think about quality problems, and to know the difference from non-quality problems." With the help of the PKMI facilitator in guiding the team's discussions, the list was reduced to four quality problems. The team was very enthusiastic in collecting data, interviewing the department heads, and discussing the findings to confirm the problems.

Although the team did not report any data from the confirmation process, they did use a criteria matrix to prioritize and select one problem from among the four. The matrix included three main categories of criteria: importance (prevalence, severity, rate of increase, public concern, and political climate), technical feasibility, and resource availability.

Problem statement: 12.5% of intra-uterine device (IUD) acceptors at the hospital's family planning (FP) clinic experienced side-effects (infection and bleeding) between January and May 1994.

Understanding the Cause of the Problem:

The team followed the recommended steps of developing a flow chart and fishbone diagram to understand the source/cause of the problem. A high-level flow chart began with the client entering the clinic, passing through each of the service points, and ending with the client leaving the clinic. Based on a discussion of this flow chart, the team determined that the problem is most likely to occur during the IUD insertion process.

The use of the high level flow chart, however, did not really permit the team to focus on the problem itself, but only on the flow of the client through the clinic. While some possible causes of bleeding and infection could be due to the insertion procedure, it could equally be caused by poor screening during the history and examination, by poor hygiene practices once the woman goes home, or inappropriate counseling that does not inform the woman that she may experience increased bleeding with an IUD. A detailed flowchart would have helped the team to better understand the nature of the problem, which was perhaps not well understood when it was selected during the first phase of identifying a problem.

The fishbone diagram contained three categories of causes: environment, materials, processes. All of the possible causes identified under equipment are shortages of equipment; those under environment listed acceptors, management, organization, and policy, without explaining what the weaknesses are with each; those under process identified types of processes carried out, but again, not the weaknesses with the processes. From the fishbone diagram, the team thought that shortages of staff, shortages of equipment, incomplete sterilization of equipment, and the skill of the workers to do IUD insertions were the most probable causes of the problem.

The team experienced difficulty developing the fishbone diagram and spent a lot of time trying to complete it. The PKMI facilitator worked with all of the team members to review how to develop the diagram. With this input, the team developed their own fishbone diagram, with the above mentioned causes, and set out to confirm which of these possible causes is the most likely. The results of the confirmation were that the equipment and number of staff giving FP services was insufficient, but that the sterilization process and IUD insertion process were satisfactory.

In spite of these results, the team developed a criteria matrix and inserted all four possible causes into the matrix. Using the same criteria as above for prioritizing among problems, shortage of equipment was selected as the most important cause of the problem. Curiously, IUD insertion procedures and sterilization of equipment were the second and third priorities, even though the confirmation process found that they were not problematic. Rather than using a criteria matrix at this point, the team could have used the data and/or a pareto diagram, to select the priority cause.

Solution Development and Testing:

"This was the easiest and fastest step for us," stated the team members. They brainstormed three interventions that could be used to reduce the problem of not enough IUD insertion equipment: sterilize used equipment immediately, ask the director to purchase more equipment, or borrow equipment from another unit.

The interventions were entered into a criteria matrix, with categories of efficiency (cost) and effectiveness (magnitude, importance, vulnerability) as the criteria. The priority intervention selected for testing was to sterilize equipment immediately after it is used.

The team developed a detailed implementation plan, running from June to December 1994 with the target of reducing IUD side effects from 12.5% to 7%. During a team meeting staff members were identified to prepare and sterilize equipment. Every week for three months, from July to September,

the team monitored the results of the intervention on the occurrence of side-effects in IUD clients. However, it appears that they did not monitor the intervention itself, that is to say, how frequently equipment were not available, or if the staff sterilized them immediately after use.

At the end of the monitoring period, the frequency of reported IUD side effects had decreased to 5.7% (or 3 of 53 new IUD clients). This is 30.9% more improvement than anticipated. But because the intervention itself was not monitored, it is difficult to say whether or not the improvement in quality (i.e., the reduction of IUD side effects) is due to the intervention or to some other factors.

RS Harapan Kita

Harapan Kita is a large, maternity and pediatric hospital with over 375 beds, and several outpatient departments. The family planning clinic serves an average of 50 new family planning clients and 200 continuing users per month. The director and staff of the hospital were already familiar with quality assurance, and have a large quality assurance program operating in many units of the hospital. This was not seen as a conflict for PKMI to introduce its internal quality assurance program into the hospital's program since the existing program was focused in the inpatient areas and the tools and process were the same. The principal difference between the PKMI program and the hospital's existing program is that the PKMI approach used multidisciplinary teams from several professions and units within the hospital, whereas the hospital's existing program had homogenous unit- and profession-specific teams.

One physician and two paramedics participated in the PKMI training for hospital teams in April 1993. However, the official team was not formed and operational until February 1994. The team, consisting of seven persons, met twice a month between February and December 1994. They received generous support from the hospital director as well as the director of the maternity services, and they routinely reported the progress of their work and the findings to the directors.

Problem Identification:

The team began by brainstorming a list of 10 problems. Through group discussion of the items on the list, the team categorized, combined and eliminated problems; those that were eliminated were done because they were thought to be causes of problems. After narrowing the list to 7 problems, the team members collected data for three

days, either through direct observation of services or examination of 30 medical records. The data helped the team to eliminate two problems that occurred less than 5% of the time. The remaining five problems were entered into a criteria matrix, and the problem with the highest score was select as the priority problem.

> *Problem statement:* *40% of medical records in the family planning clinic, between the period of January 1 and April 1, 1994, are incomplete.*

The team reported that they had no difficulties brainstorming and clarifying the list of problems. However, they had a little difficulty, for which they requested assistance from the PKMI facilitator, in collecting and managing the data to confirm the problem.

Understanding the Cause of the Problem:

To understand the problem, the team developed a flow chart and a fishbone diagram, collected data, and used a criteria matrix to prioritize among possible causes.

A high level flow chart began with taking the patient's chart from the medical records office, followed a sequence of steps through those who had responsibility for entering notes into the chart, and ended with the chart being returned to medical records. The flow chart was linear and had no decision points. However, it was useful to the team in helping them understand how many people have responsibility for entering information in the chart and enabled them to see that if any one of these personnel did not do their part, that the record would be incomplete. They identified the admissions/counseling personnel, nurses, and doctors as potential areas where charting might be incomplete.

Using a fishbone diagram, the team identified knowledge, attitude and practices (KAP) as the most likely causes of the problem. The team admitted to having difficulty using the fishbone diagram. They identified three categories of problems: inputs, environment, and process, and only single-word causes, such as 'manpower', 'equipment' and 'finances' under the

category of inputs. The KAP causes were applied to each of the personnel identified in the flowchart above as potential sources of the problem.

The team conducted three days of observation, as well as an in-depth interview with each staff member (admissions, counselors, nurses and doctors), and examined 56 medical records. They determined that the knowledge and attitudes of all staff are acceptable, however entering information in the records was not completed 28.6% of the time by admissions personnel, 36.7% by nurses and 39.2% by doctors.

Discussion and a criteria matrix were used to select the priority cause, which is the practice/behavior of the nurses.

Solution Development and Testing:

T he team used two meetings to brainstorm a list of five possible solutions and to use a criteria matrix to select one priority intervention. The criteria matrix for this step uses variables for efficiency and effectiveness to help select among interventions.

Alternating responsibility among nursing staff to check the completeness of charting in the medical record and take action to ensure complete recording was selected over the other four alternatives. Over a six month period from April - Oct 1994, the team's goal was to reduce from 40% to 10% the proportion of medical records that were not complete. Once the system was established and operating, the team reviewed 30 medical records per month for 3 months, with the following results:

- October 94 = 13% records incomplete (4/30)
- November 94 = 3% records incomplete (1/30)
- December 94 = 10% records incomplete (3/30)

Clearly the solution produced the intended results. The team conducted meetings with the heads of the units involved, established schedules, and communicated the findings so that the solution could be institutionalized.

RS Tanggerang

Tanggerang hospital is a large government teaching hospital with over 300 beds located just outside Jakarta. In addition to several specialty units, the family planning unit is staffed by four physicians and three paramedics.

One representative from the hospital participated in the PKMI quality assurance training in April 1993, and the quality improvement team was formed in May. In June, PKMI delivered a one day orientation seminar for 64 staff at the hospital. The team was not able to meet until September because all the staff were extremely busy with other activities. The hospital director wrote a letter to PKMI suggesting that a new team be constituted; however, none of the new members had been trained in basic quality assurance skills.

After the new team was put together, they had their first meeting April 2, 1994 to discuss how they should work as a team. Their second meeting was held April 4, 1994 to discuss the problem.

Problem Identification:

During this meeting, the team brainstormed a list of 12 problems, discussed and clarified the problems and reduced the list to 6 problems. During the meeting the team also discussed the criteria for confirming how they would know if the problem is really a problem — if the problem occurred more than 5% of the time, it would be considered a problem.

After this initial technical meeting, however, the team never met again. The reason given was that the team leader did not have time to call or participate in meetings. No problem was selected and no further activities undertaken.

RS Koja

Koja hospital is a general hospital which sees approximately 25 new family planning acceptors per month for long-term contraceptive methods. After agreeing to participate in the PKMI quality assurance program, the hospital director participated in an orientation training and three members of the quality improvement team participated in a technical training in April 1993.

However, as of February 1994 the team had not met or begun any activities. PKMI met with the hospital director on March 22, 1994 to discuss resurrecting the quality assurance activities. The reason given for the delay was that the hospital was undergoing building renovations. In addition, the team members had been changed by the director, but the letter had not yet been written. A team meeting was scheduled for March 25, 1994 and attended by the director and 6 team members. Dr. Azrul met with the team to review the quality assurance program and the steps in problem-solving, with special focus given to the first step that the team would implement, namely identification of a problem. The next team meeting was scheduled for April 21, and a hospital-wide seminar was scheduled for May 28.

The April 21 team meeting was attended by only 3 team members and the team leader. The meeting was rescheduled for May 20, but in the time intervening several other activities had been scheduled for that same day and the meeting was again rescheduled, this time for June 4. The hospital-wide seminar was conducted by Dr. Azrul on May 28 as scheduled and attended by 60 staff.

At the end of this seminar, the team leader appointed the only other doctor on the team as the secretariat and made him responsible for scheduling and running team meetings. The June 4 meeting was rescheduled for June 21 and then postponed again. The PKMI facilitator met with the team on June 24; only 2 members showed up and stated that the team had never had any meetings or activities because the team leader was too busy.

Some of the difficulties encountered include:

1. The physician appointed as team leader is not the division director,
    however, the division director was on the team as the deputy team
    leader.

2. There are only two obstetrician/gynecologists in the hospital and
    both were on the team. It was difficult for them both to participate at
    the same time.

3. The team members participation depended on the team leader, and he
    was too busy. Because he was so busy, gave responsibility to another
    doctor to arrange the team activities. However, he was also very busy
    and did not work everyday at the hospital.

RS Islam Pondok Kopi

Ponok Kopi is one of three branches of the private Islamic hospital in Jakarta. This 150 bed hospital is staffed by over 300 health professionals. The only long-term contraceptive method offered through the hospital's family planning program is the IUD. Sterilization services have not been authorized by the religious leaders of the hospital except for medical conditions, and to date there have been no Norplant users serviced by the hospital.

Two staff members participated in the PKMI quality assurance training in November, 1993. A full team of 8 persons was formed in February 1994.

Problem Identification:

The team brainstormed a list of 7 problems. After discussion to clarify the problems, the list was reduced to 5 problems. Client interviews confirmed the existence of three problems, and a criteria matrix was used to select the priority problem.

Problem statement: 95% of (potential) family planning clients who came to the clinic during the month of March 1994 had a very low knowledge of family planning methods.

Understanding the Cause of the Problem:

The team used both a high level flow chart and a fishbone diagram to identify the potential causes of the problem. The flow chart began with the client entering the hospital's clinic for family planning services, and ended with the client leaving the hospital. It is not evident that the team was able to identify any source of the problem with this flow chart, since it deals with the flow of the client through the clinic, rather than focusing on the problem of lack of knowledge about family

planning. A detailed flow chart would be more useful—one that identifies ways that clients learn about family planning before entering the clinic, as well as detailing the counseling process within the clinic.

The fishbone diagram, used to identify potential causes of the problem, helped the team organize their ideas under inputs, processes and environmental causes. Through this tool, the team identified four potential problems for which they would collect data through interviews with staff and observations. The team found that 85% of the time, there were not enough staff to do counseling, that there were no educational or informational materials nor a room for counseling, and that no counseling was being given.

The team then used a criteria matrix to prioritize and select a priority. However, only three of the four possible causes were entered into the matrix—staff, materials, and a room. The priority cause identified was there are not enough staff to do counseling.

Solution Development and Testing:

The team proposed two possible solutions: 1) move a staff person who already knows counseling to the FP clinic, or 2) move a new staff person to the FP clinic and train them in counseling. The alternative solutions were again entered into a criteria matrix, this time with criteria for efficiency and effectiveness, with the priority being to move an already trained staff person to do counseling in the family planning clinic.

The team developed a workplan and timeline for testing the solution from March through December 1994. Their target was to decrease from 95% to 18% the number of potential FP clients who do not know FP methods.

At the time this report was written, there had been no reported results.

RS Pelni

*Pelni hospital is a large hospital, owned by the government shipping indus-
try. It has a capacity of nearly 540 beds, and provides all types of health
care services. The family planning clinic sees an average of 40 new accep-
tors and 230 continuing users per month.*

*The director and staff of the hospital were already familiar with quality
assurance, and have a large quality assurance program operating in many
units of the hospital. This was not seen as a conflict for PKMI to introduce
its quality assurance program into the hospital's program since the existing
program was focused in the inpatient areas and the tools and process were
the same. The principal difference between the PKMI program and the
hospital's existing program is that the PKMI approach used
multidisciplinary teams from several professions and units within the
hospital, whereas the hospital's existing program had homogenous unit-
and profession-specific teams. One of the PKMI team members was also a
facilitator for other hospital quality assurance teams.*

*Three staff members participated in the PKMI training in April 1993. The
full team was not formed immediately because of a change in the hospital
director, which occurred in January 1994. A one-day orientation seminar
for hospital staff was held in February. Immediately after that the 11-
person team began meeting once a week on Thursdays from 12:00 to 2:00
pm. The PKMI facilitator visited once per month to review the team's
work, answer questions, provide technical assistance, and collect reports
from the team.*

Problem Identification:

The team brainstormed a list of 10 problems, and then discussed
them to clarify that they were really quality problems. As a result
of the discussion, the list was reduced to four problems, the
others eliminated from the list being identified as causes of problems. The

four problems included: a) many family planning acceptors experienced side effects, b) client knowledge about sterilization is low, 3) clients experience long waiting times at the clinic, and 4) explanations to clients before and after IUD insertions is low.

The team divided responsibilities for collecting data about the size and existence of these problems. Of nearly 400 medical records reviewed, 10% of acceptors had documented evidence of side effects, and of 30 clients interviewed, 92% did not know about sterilization, 73% experienced waits of more than 30 minutes, and 23% of IUD users did not receive information before the IUD was inserted and 20% did not receive information after the insertion.

Through discussion and the use of a criteria matrix, the team prioritized among the four problems and selected the second one as the problem.

> **Problem statement:** *91.6% of family planning acceptors at RS Pelni in the month of March 1994 did not know about sterilization.*

The team experienced some difficulty during this problem identification step, particularly with the collection and management of data; the PKMI facilitator provided assistance.

Understanding the Cause of the Problem:

For this step, the team used a high level flow chart and a fishbone diagram to generate ideas about the cause of the problem. The flow chart began with the client entering the clinic and ending with the client leaving. At two points during the client's visit, the team identified potential sources of the problem: when the client received counseling prior to receiving the family planning service, and again after the service is received when the client receives further information about their contraceptive. The team did not have difficulty completing the flow chart. However, a more detailed flow chart would have been more useful to the team to understand weaknesses in the counseling process.

The team used a fishbone diagram to organized possible causes under the headings of manpower, process/method, environment, and equipment. Rather than selecting individual causes, the team selected three categories of causes to investigate further: workers, equipment, and environment. To confirm the problems, the team conducted observations during service delivery to gather data about the number of workers who are active in information, education and communication (IEC), the number of brochures available, and the average amount of time for IEC.

The findings revealed that: 1) 12 staff are active in providing IEC, 2) the average amount of time spent on IEC is 3 minutes, 42 seconds per client, 3) the knowledge of 30 staff interviewed about IEC is low, 4) the clinic has available 82 tubectomy brochures, 85 vasectomy brochures, 7 pre & post tubectomy brochures, 95 pre & post vasectomy brochures, and 63 brochures for couples, and 5) the family planning clinic is busy, crowded and open, and the counseling room shares the same space with the administration room and the pre-exam room.

From these findings, the team concluded: 1) personnel factor: the number, availability, and knowledge of workers is limited, 2) materials factor: the number of brochures and IEC materials is not sufficient, and 3) environmental factor: the time for family planning services is the same as obstetric services. Although the team reported that they had difficulties constructing the fishbone diagram, they did not have difficulties collecting and analyzing the data.

These problems were entered into a criteria matrix with the priority problem being the personnel factor: the number and the understanding of staff is limited, as is the amount of time available for IEC.

Solution Development and Testing:

The team met four times to develop and select a solution for testing. They brainstormed four possible solutions: 1) use staff from other related units who are experienced in giving IEC, 2) increase the number of staff and the knowledge of staff through self instruction, training from PKMI, or send to PKMI for training, 3) adjust the schedule to have a special day for family planning, and 4) provide IEC in other units.

Using a criteria matrix with efficiency and effectiveness variables, the priority solution was to adjust the schedule, especially for family planning.

The objective of the solution was to decrease from 92% to 50% the number of clients who do not know about sterilization. The team held meetings to determine the new schedule, and conferred with the directors and staff of the hospital units to inform them of the changes. Likewise information was given to clinic staff and clients informing them of the changes. Unfortunately, nowhere in the report does it indicate what these schedule changes were, or how they are related to other services. For six months, from July - December 1994, the new schedule was monitored.

During the first month, only 33% of the clinic's clients adhered to the new schedule. This decreased to 25% in October, although on average, only one-third of the clients followed the new schedule throughout the solution testing period. In spite of not adhering to the schedule, the proportion of clients who did not know about sterilization continued to drop, from an average of 30% in October, to 16% in November, and only 7% in December.

While it appears that the change in schedule contributed to a decrease in the number of clients not knowing about sterilization, it is also apparent that other factors contributed to improving the quality of IEC services, since the majority of clients did not adhere to the new schedule. This demonstrates that the quality improvement team approach of involving others in and informing others about the goals of the team, can build support and help support a positive outcome.

RS Fatmawati

RS Fatmawati is a large hospital in south Jakarta, with over 500 beds. The hospital had already begun quality assurance activities throughout its inpatient units at the time that the PKMI study began, and agreed to work with PKMI to introduce quality assurance in the family planning program clinic. The family planning clinic sees an average of 87 IUD clients, and 6 tubectomy clients per month; in 1994 there were no Norplant or vasectomy clients.

Three staff members on the team participated in the PKMI training. In May 1994 a hospital-wide seminar was conducted to introduce the new quality assurance activities to other staff throughout the hospital, and the following week the team began the problem-solving process. The team tried to meet once every two weeks, and the PKMI facilitator visited once per month. However, they reported that it was difficult to agree on meeting times, with the result that they did not always pay attention to each step in the process. The PKMI facilitator reported that this may also be due to the fact that not all of the team members participated in the training, and therefore did not thoroughly understand the problem-solving process.

Problem Identification:

Using the brainstorming process, the team listed 10 potential problems; after discussion and clarification, the list was reduced to 5 problems on which the team would gather data: 1) a patient death, 2) cancelled sterilization procedure, 3) long waiting time for patients, 4) the number of tubectomy cases is low, and 5) tubectomy failure. For problems 1,4,5, the team reviewed the medical records of 31 tubectomy clients, for the second problem the team reviewed the records of 33 potential tubectomy clients, and for the third problem the team interviewed 7 staff in the family planning clinic and 37 staff in the maternity inpatient units.

The results of the investigation revealed that a) 100% of clients experience a long waiting time, which was also stated by 92% of the staff, b) in the last 5

months only 31 tubectomies were performed, although the expected standard for that time period is 80 cases, and c) of these 31 tubectomy cases, 3.03% resulted in failure (pregnancy).

Using a criteria matrix, the team selected the priority problem.

> **Problem statement:** *91.8% of 42 workers in the polyclinic and inpatient units agreed that potential tubectomy clients wait too long to receive services.*

Understanding the Cause of the Problem:

Because the team consisted of representatives from every unit that is involved with tubectomy procedures, they were able to develop a detailed flow chart, identifying 45 steps that a client goes through to receive a tubectomy. Of these 45 steps, 12 are non-medical activities, such as registration, payment, etc., and 13 are medical steps such as examination, laboratory, etc. The remaining 22 steps in the flow chart represented times that a client waits between other activities.

Each of the team members collected data about the waiting times, with the shortest waiting period being 15 minutes, and the longest being a half day. The waiting periods fell into three categories: waiting time before the surgery, waiting time associated with the surgery, and waiting time for administrative payments. In addition to classifying the categories of waiting time, the team also tried to assess the activities associated with each category.

The team made excellent progress in using the flow chart to understand the source of the problem, However, the analysis of the findings from the flow chart seems incomplete. For example, they did not report which of the three categories is the most problematic, nor do they report any further detail about the activities associated with the categories. Instead they proceeded directly to constructing one fishbone diagram for each of the three categories of waiting time. Based on these three fishbone diagrams, they identified five potential causes of the waiting time problems, for which they went on to collect more data.

By the end of the study period, the team was still at the steps for understanding the cause of the problem. No further data were available.

RS Marinir Cilandak

Marinir Cilandak is a navy hospital open to navy members and their families, as well as to the surrounding community for general services. The hospital has an 86 bed capacity as well as outpatient facilities. The family planning clinic sees an average of 85 IUD clients, 1 Norplant client, 4 tubectomy clients, and 1 vasectomy client per month. Four staff members participated in the PKMI training in April 1993, but it wasn't until October that the team really began to implement its first quality assurance cycle.

Problem Identification:

After brainstorming a list of seven problems, and using monthly reports to confirm the existence of the problems, the team used a criteria matrix to select the priority problem: 7.8% of IUD clients at the hospital experienced IUD failure in 1993. The term 'failure' was clarified to mean pregnancy with the IUD still in place, which occurred for 13 of 167 IUD clients.

The team reviewed the medical records for ten of the failure cases to try and identify possible causes of the problem, such as type of IUD and duration of use. No clear patterns emerged from these data as the failures occurred with three different types of IUD. The team then discusses several other possible causes of the problem, any of which were related to clinical service provision, physical conditions of the uterus, and client behavior. Some of these causes were related to IUD failure if the IUD was expelled, but not to pregnancy with the IUD in place. The team wanted to know how their data on IUD failure compared with other data. It was suggested that the team contact BKKBN and the pharmaceutical companies to ask for comparison data.

In attempting to understand the source of the problem, the team developed a high-level flow chart from the time the client arrives at the clinic until she leaves. This flow chart does not deal with the specific problem, which is a difficult one to flow chart since the failure occurs after the client has returned home. The team's previous discussion of possible causes could have been organized onto a fishbone diagram, which would have been more helpful to the team than the flow chart, for this particular problem. During discussion with the PKMI facilitator, the team decided that it would be very difficult to solve this problem, and selected another problem: the waiting time for services it too long.

To confirm the problem, the team interviewed 30 women who had returned for a postpartum control visit, as well as interviewed staff at the clinic about family planning services at the hospital. These interviews revealed deficiencies in servicing potential family planning clients.

> **Problem statement:** *50% of potential family planning clients return home without receiving family planning services.*

Understanding the Cause of the Problem:

The team began by trying to develop a flow chart of client flow to see where in the process clients were required to wait and why they were not getting service. The flow chart began with the client entering the clinic and ended with the client going home. The longest waiting period was determined to be prior to receiving any services. Following this step, the team developed a fishbone diagram to list possible causes of the waiting time problem. Five possible causes were identified for which the team then collected data: 1) on average one worker sees 15 patients per day, 2) there is no organization for family planning, 3) 100% of staff provide family planning services, but they are at the same time as vaccination services, 4) more than the two designated staff work at other activities, and 5) doctors are frequently late, although there is no record to verify this.

The team used a criteria matrix to prioritize and select the most important cause of the problem: The day for family planning services is the same day as other services (vaccination).

In both of these problems, IUD failure, and potential family planning clients leaving before receiving services, this team has demonstrated a good understanding for exploring potential causes of the problem.

Solution Development and Testing:

During one meeting the team identified four potential solutions and used a criteria matrix with efficiency and effectiveness variables to select a priority solution: Adjust the schedule of clinic services.

The team's next meeting was to discuss how to adjust the schedule of clinic activities. But once the team understood the problem, changes began occurring. The principal change increased the number of immunization and family planning days from once per month to twice per month. In addition, the nursing staff from the maternity unit gave mothers referral cards to return to the clinic for family planning services. Since the solution was implemented, the team reported that there were no more instances of potential family planning clients leaving the clinic without receiving services.

Although this problem has been reduced and the quality of services to potential family planning clients improved, the team has not met to begin another problem-solving cycle. The reason given is that it is too difficult to find the time to meet.

RS Husada

Husada is a private hospital in the center of Jakarta. The hospital director, Dr. Samsi Jacobalis, is one of the pioneers in Indonesia to begin implementing quality improvement activities in his hospital. For more than a year prior to the implementation of PKMI's program, Dr. Samsi helped teams get started in several units within the hospital. Two of the teams, one from the nursing department and one from the laboratory, conducted a presentation of their work and findings to other hospital staff. These presentations clearly demonstrated the process and tools used to identify and solve quality problems.

Three persons from the PKBRS polyclinic were trained during the first technical training session in April 1993. A orientation for hospital staff, particularly nursing staff, was conducted by the hospital director and Dr. Azrul on June 28. Dr. Samsi retired on August 1, 1993, and it wasn't until a few months later that the new director was in place. The new director is also very supportive of quality improvement activities, although he has not taken the personal interest that Dr. Samsi demonstrated. Before he retired, Dr. Samsi was the in-house advisor, but there is currently nobody taking over this responsibility.

Problem Identification:

The quality improvement team consisted of 10 members. Initially the team met bi-weekly for the first two months, with each meeting lasting an average of two hours. They first met on August 7 to begin brainstorming a list of problems. Eleven problems were listed and discussed by the team members, and five were selected as priority problems. During the subsequent meeting on August 19, the team used a criteria matrix to select one problem that they would address. Although

there were differences of opinion because of the closeness of scores (ranging between 52-58), the team settled on the following problem.

> **Problem statement:** *Post-tubectomy wound infection among post-partum patients.*

While the team felt that this problem was certainly a priority, they needed a baseline that would tell them how frequently infections were occurring so that they could later assess whether they were making improvements by decreasing the incidence of infections. For three months the team monitored each tubectomy client and recorded the number of infections occurring within the first week after surgery. They found that 6.6% of clients who returned after one week for their post-operative visit had a wound infection.

Understanding the Cause of the Problem:

In September, the team developed a flow chart to identify possible sources of the infection. In January, during the project's mid-term evaluation, the team reported that they just had a 3 1/2 hour meeting to review and revise their work in previous steps and to develop a new flow chart.

The revised flow chart was very detailed, demonstrating the team's understanding of the larger steps in the process. However, the team experienced difficulties using the tool, particularly in identifying decision points, as well as determining where the process begins and ends. The process outlined in the flow chart began from the time the woman received counseling about tubectomy during the antenatal period and ended after three follow-up visits, clearly beginning long before the infection process could take place, and ending well after the one week timeline for post-operative infection. It was suggested that the team eliminate unnecessary steps in the process, and develop smaller flow charts of sub-processes which could then be examined in more detail.

"Identifying the cause of the problem is the most difficult step" said one of the team members. "We made a flow chart to see where infections might occur, and then tried to do a fishbone diagram to look for other causes. We started first by looking at what is going on in the hospital - sterilization of equipment, cleanliness of the operating room and patient rooms, sterile technique used during the operation - but we found nothing. Then we thought that maybe something is happening when the client goes home - what is their living environment like, is there house clean, are they taking care of the incision like they are told? For each of these possible causes, we had to collect a lot of information because one thing could be related to another thing, and we found that the cause of the problem lies deeper than we first thought. That is why this step was the most difficult and time consuming."

During return checkup visits, team members interviewed each client about her home environment and asked her to recall what instructions she received before going home from the hospital. The team learned that very few clients were given information about what to do when they went home, and that those who had received information did not receive complete information. The team decided that this was the real cause of the problem, and the only one that they would work to improve.

Solution Development and Testing:

Now that the team had identified what they felt to be the main cause of the problem, it was easier to develop a solution. Several possibilities were discussed such as increasing the number of staff or assigning one staff member to do counseling and education, or developing materials for clients to take home with them. They decided on a combination of these.

PKMI already had a leaflet for clients that explained tubectomy and provided information about what the client should do and not do before and after the procedure. The team reviewed the leaflet and determined that the information was complete and written in a simple manner so that clients could easily follow the instructions. Leaflets were distributed to every unit

in the hospital, especially those where tubectomy clients would spend the night. Staff were asked to give a leaflet to each client before she went home, to read the leaflet with the client and answer any questions. The leaflet has space on the back for the doctor or midwife to write any special instructions, such as the date of the return visit or a medication schedule. Clients were instructed to bring the leaflet back with them to the return visit.

The team monitored the effect of the solution for a three-month period. They found that all clients returned for their follow-up visits, and nearly all brought their leaflet with them. During the visit, the doctor noted the client's condition and any further instructions for the client and returned the leaflet to the client. During the three-month monitoring period, there was not a single case of post-operative wound infection. While the team members are not sure what clients are doing differently at home, they are satisfied that the extra information and counseling given to clients before they go home has resulted in a better outcome.

Institutionalization of the Solution:

The final steps for the team are to ensure that the process of counseling and providing a leaflet to all clients continues. This means maintaining a steady supply of leaflets, distributing them to the nursing units, and reminding staff to discuss the information with the clients before they go home from the hospital. The team plans to present their findings to the hospital staff during a seminar supported by the hospital and division directors.

"Using the QA approach, I feel like we are working on a 'real' problem" said one of the team members. "This is different than doing an inspection and finding a little thing here or there that needs to be improved. Sure, you can improve that thing, but it may not solve an 'entire' problem. With this program, we feel like we really understand how to solve problems. It can be a difficult process, but that is because we are learning the steps at the same time as we are doing them. I think the next time will be easier because I understand more and can help my team members better." The

team used the materials they received during the training, rather than the Quality Assurance Manual as their reference materials. They suggested that the training should be very practical and use more examples and exercises.

One of the problems identified by the team in implementing the quality assurance program is finding the time and motivation to get the team members together. In this regard, they identified the external motivation from PKMI as very important for the progress of the team's work. When they knew that PKMI was coming to visit, the team would meet prior to the visit, and complete at least one more step in the process. During the visit, the team discussed their work with PKMI and received feedback on it. Once the team got together and worked through the steps, they found the process very stimulating and enjoyable. All members of the team said that they worked well together.

RS Budi Kumuliaan

RS Budi Kemuliaan is a government maternity hospital in Central Jakarta with a large outpatient department for maternal and child health services as well as family planning. The director, Dr. Sunarto Wironagoro, is very supportive of the quality assurance program. Three persons (two doctors and one midwife) were trained by PKMI during the second training session. After the training, the director asked that each of these three persons head a problem-solving team, such that the nursing unit, the central medical records unit, and the PKBRS each formed a quality improvement team. A hospital-wide orientation seminar was conducted June 24 with more than 50 staff in attendance.

The PKBRS quality assurance team consisted of nine persons: the three persons who were trained as well as six others. Between July 12 and 22, 1993, the team met every day for two hours to develop a list of problems, select a priority problem, identify possible causes of the problem and develop a questionnaire.

The team brainstormed an initial list of ten problems, most of which were not stated as problems, but rather identified topics where problems might exist. For example "problems with counseling", "beginning work", "work flow", or "medical records". During one of PKMI's monitoring visits, the problems with these topics were identified, such as "not all clients receive counseling" or "staff do not begin work on time".

The team did not collect baseline data about any of these problems in order to determine whether or not they are really problems. They used the voting technique to select their priority problem.

> **Problem statement:** *Records/charts of FP clients in the PKBRS were difficult to find between the months of January and July 1993.*

Discussion of the problem statement during this evaluation visit revealed the need to quantify how many and what percent of charts are difficult to find, and to precisely define what is meant by "hard to find" (i.e., it takes more than 30 minutes to locate the chart).

Understanding the Cause of the Problem:

A simple flow chart was developed defining the normal or ideal routing of a client's record from the time the client arrives until the record is returned to the filing shelf. The flow chart did not, however, detail what is done if the record is not found or is lost at any step along the way, nor did it detail the filing system after the client's visit is completed. The team experienced some difficulty getting started with the flow chart because they did not know if they should follow the flow of the client or the flow of the record; they made the correct choice deciding on the latter. No boxes or diamonds were used in the flowchart to illustrate where decision points and potential problems occur. Dr. Azrul reviewed this with them during the evaluation visit.

The team used a fishbone diagram to identify possible causes of the problem under the categories people, equipment, process, and system. From the fishbone, three potential causes which the team felt were the most likely causes were selected.

A questionnaire was developed to collect information about these possible causes. It was distributed to 50 staff who work on a rotational basis in the PKBRS. Questions were grouped into three categories corresponding to the three possible causes. However, the manner in which the team analyzed and interpreted the data is not clear. For one category, the results of only one question were used; for the second category, the results of two questions were combined; and for the third category, the results of all three questions were combined. Percentages were calculated for these three categories and the cause of the problem identified.

Cause of the problem: *Staff responsible for filing the records want to go home quickly.*

Discussion to clarify the meaning of this statement revealed that at the end of the day when the staff want to go home they do not file the records before they leave.

Solution Development and Testing:

T he team brainstormed three alternative solutions: develop guidelines for filing records, disseminate information, assign one staff to be responsible only for filing records. Using a criteria matrix with the criteria for efficiency and effectiveness, the team selected the first solution, to develop guidelines for filing records.

The PDCA cycle was used by the team to plan, implement, check and revise the solution. The objective of the solution was to decrease to 5% the family planning clients' records which are difficult to find. The timeline of intervention was from September 1993 to March 1994. The first two months were used to develop and pre-test the guidelines, the following month to orient the PKBRS staff to the new process, the next three and a half months for monitoring the solution, and the last month for final revisions and dissemination of findings. The team then entered the phase of monitoring the solution.

No further data are available on the outcome of this study.

RS Bekasi

RSU Bekasi is a government-owned general hospital in West Java. The director, Dr. Hario Untoro, is very supportive of the quality assurance program. He explained that in 1988 RSU Bekasi contracted a management consultant to conduct an assessment of quality in the hospital; this assessment was not ordered by the Ministry of Health. To conduct the assessment, the management team interviewed staff to get their opinions of problem areas, developed a questionnaire, collected and analyzed the data, and presented the findings to the hospital and unit directors. The next step was then to take action to solve the priority problems. The heads of several departments who had participated in a management course the previous year, received additional training in facilitating quality circles and using the problem-solving tools. The facilitators then trained eight quality circle teams throughout different units in the hospital. While the model taught by PKMI is different from their original model, the principles are the same. As well, all the teams have ceased to function. The director sees this new team as possibly being able to breathe life back into the hospital's quality improvement program.

Three persons were trained by PKMI during the second training session. The PKBRS quality assurance team consisted of 13 persons: the three persons who were trained as well as 10 others. A hospital-wide orientation seminar was conducted June 26, 1993, with 60 staff in attendance.

Problem Identification:

The team first met on July 16 to begin developing a list of problems. They followed the steps in the first version of the manual, namely to make a list of services offered through the FP polyclinic, select a priority services, and then identify problems within that service. IEC was selected as the priority service after a group discussion and consensus decision of the team. At this first meeting they decided to collect data

about problems in IEC, both medical and non-medical, and bring the data to the second meeting.

According to previous monitoring records by the PKMI staff, the team identified as the principal problem that 80% of 'work units' do not report IEC activities. During this visit, the results of the counseling for gaining new FP clients was the stated problem.

> **Problem statement:** *The results of in-patient IEC during the period of January - June 1993 are less than 2%.*

The team presented a table of data which included the total number of in-patients per month, total number of IEC encounters per month, and the total number of new FP clients per month. Calculations were made of the percent of in-patients receiving IEC (7.2%) and the percent of new FP clients (1.2%). A problem was identified with the calculation of new FP clients because the denominator used was the total number of in-patients rather than the total number of IEC encounters, which would result in 17.3% acceptance of FP among those who received counseling. Several other problems were discussed about the sources and validity of the data since many patients who received IEC may have sought FP services else-where, or the new FP clients may never have been in-patients.

A bigger concern, however, is that the team did not realize that two problems could be identified from the data. The first is that the number of in-patients receiving IEC is low, and the second that the effectiveness of the IEC is low. Although the team selected the latter problem for their problem statement, subsequent steps focused on identifying causes of the former problem.

Understanding the Cause of the Problem:

The team did not use a flow chart which was an appropriate for the problem that clients who receive counseling do not become FP acceptors. A fishbone diagram was used to organize ideas about possible causes of the problem. However, all the causes were related to the problem that in-patients do not receive IEC. Likewise, a questionnaire was developed and 30 staff interviewed about their knowledge and attitudes to providing IEC;

there were no questions related to behavior or practices in providing IEC.

At this point the evaluation team clarified with the team which of the two problems they were most interested in working on. They decided that more clients should received IEC, and selected that problem. Using the data they already had, they revised the problem statement: In-patients at RSU Bekasi who received IEC during the period of January - June 1993 is low - only 7.5%.

Questions were posed to the team about when and how IEC occurs during a patient's stay. To detail the process by which in-patients receive IEC, a flow chart can be used to identify points in time during the patient's stay that staff do/could provide IEC, as well as barriers to providing the IEC. It was also suggested that the questionnaire used to collect information should focus on what staff do, or say that they do, and the difficulties they encounter in providing IEC. The team is planning their next meeting for mid-February.

No further data are available on the outcome of this team's problem-solving activities.